



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/757,587	01/15/2004	Boris Zabarski	060707-1180	4907
24504 7590 02/03/2009 THOMAS, KAYDEN, HORSTEMEYER & RISLEY, LLP 600 GALLERIA PARKWAY, S.E. STE 1500 ATLANTA, GA 30339-5994				
EXAMINER				
DO, CHAT C				
ART UNIT		PAPER NUMBER		
2193				
MAIL DATE		DELIVERY MODE		
02/03/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/757,587

**Applicant(s)**

ZABARSKI ET AL.

**Examiner**

Chat C. Do

**Art Unit**

2193

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 October 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6, 13, 16-24, 32, 33 and 35-38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 13, 16-24, 32, 33 and 35-38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

1. This communication is responsive to Amendment filed 10/22/2008.
2. Claims 1-6, 13, 16-24, 32-33 and 35-38 are pending in this application. Claims 1m 13m 17, 20, 32 and 36 are independent claims. In Amendment, claims 7-12, 14-15, 25-31 and 34 are cancelled. This Office Action is made final.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claims 13, 16, 32-33 and 35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Re claim 13, the limitation "assigning a destination register with an index value and a value of a first source register from among the plurality of source registers" is unclear as (1) whether or not this step of assigning is done before any other steps comparing, concatenating, and storing; (2) how the step of assigning the destination register at the beginning would relate to the rest of other steps since whatever stored in the destination register would be overwritten by the last step of storing. For examination purposes, the examiner considers the step of assigning is related but not occur in sequence. Claim 32 has the similar rejection.

Thus, claims 16, 33 and 35 are also rejected for being dependent on the rejected base claims 13 and 32.

***Claim Rejections - 35 USC § 101***

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. Claims 1-6, 13, 16, 20-24, 32-33 and 35 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1-6, 13, 16, 20-24, 32-33 and 35 cite a processor and method for determining a minimum/maximum value among values in accordance with a mathematical algorithm. However, claims 1-6, 13, 16, 20-24, 32-33 and 35 merely disclose series mental steps/components for determining a minimum/maximum value among values without disclosing a practical/physical application. Further, the method claims 13, 16, 32-33 and 35 fail to tie to specific machine or apparatus for realizing the implementation. Therefore, claims 1-6, 13, 16, 20-24, 32-33 and 35 are directed to non-statutory subject matter.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 13 and 32-33 are rejected under 35 U.S.C. 102(b) as being anticipated by Okumura et al. (U.S. 5,726,923).

Re claim 13, Okumura et al. disclose in Figures 1-9 a method for reducing a number of processor cycles (e.g. col. 2 lines 30-56) for determining a minimum value and a corresponding index value of a plurality of source registers of a processor (e.g. abstract and general architecture is seen in Figure 1), the method comprising the steps of: assigning a destination register with an index value and a value of a first source register from among the plurality of source registers (e.g. Figure 2 as general data structure of each specific registers 11x in Figure 4 as repeated loop. Within the next repeated loop, the initial/stored register has the content of the previous loop which is the index value and the value of the first source register); for each of the plurality of source registers (e.g. registers in memory 1, register 5, and specific registers 11x in Figure 4), comparing a value stored in the source register with a value stored in a destination register (e.g. col. 6 lines 1-20); concatenating the value stored in the source register with an index value associated with the source register and storing the concatenated value in the destination register when the value stored in the source register is less than the value stored in the destination register (e.g. step S9 in Figure 3); and wherein the destination register initially includes an index value and a value of a first source register of the plurality of source registers; and wherein comparing, concatenating, and storing are implemented by a single processor instruction (e.g. col. 4 lines 45-50 and col. 5 lines 65-68) and performed within a single processor cycle (e.g. col. 4 lines 45-50 and col. 5 lines 65-68).

Re claim 32, it has similar limitations cited in claim 13 and further Okumura et al. disclose in Figures 1-9 the same architecture can be used/implemented to perform maximum detection in same manner as minimum detection (e.g. col. 5 lines 38-51). Thus, claim 32 is also rejected under the same rationale as cited in the rejection of rejected claim 13.

Re claim 33, it has similar limitations cited in claim 13. Thus, claim 33 is also rejected under the same rationale as cited in the rejection of rejected claim 13.

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okumura et al. (U.S. 5,726,923).

Re claim 1, Okumura et al. disclose in Figures 1-9 a processor (e.g. architecture is seen in Figure 1) for determining a minimum value of a plurality of values stored in source registers (e.g. data field 11a in Figure 2 is stored the minimum value from either source registers 6 or 11 in Figure 1) and determining an index value of a source register having the minimum value (e.g. index field 11b in Figure 2), the processor comprising: a destination register (e.g. specific register 11 in Figure 1); a first source register storing a first value (e.g. register 11 in Figure 1), wherein the first source register comprises S bits,

and wherein the first value comprises N lower bits of the first source register (e.g. Figure 2 wherein the index filed is on the upper higher bit); a second source register storing a second value (e.g. registers 5-6 in Figure 1), wherein the second source register comprises S bits, and wherein the second value comprises N lower bits of the second source register (e.g. Figure 2 wherein the index filed is on the upper higher bit); means for comparing the first value stored in the first source register with the second value stored in the second source register (e.g. arithmetic logic unit 4 in Figure 1 as comparison unit as cited in col. 4 lines 28-40); means for storing the first value in the destination register when the first value is less than the second value (e.g. path of specific register 11 less than register 5 in Figure 3); and means for concatenating the index value with the second value into a concatenated value and storing the concatenated value in the destination register (e.g. step S9 in Figure 3 which is done by index linking circuit 10 in Figure 1) when the second value is less than the first value (e.g. path goes through S9 in Figure 3), wherein the index value is stored in an upper (S-N) bits of the concatenated value and the second value stored in the N lower bits of the concatenated value (e.g. Figure 2 wherein the index filed is on the upper higher bits).

Okumura et al. fail to explicitly disclose the condition of equal to for the first test in combine with less than to form less than or equal to. However, the examiner takes an Official notice that the condition less than or equal is very well-known in the art and widely used in many practical applications.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention is made to add the additional condition as less than or equal to

into Okumura et al.'s invention because it would enable to prevent unconditional event (e.g. equal result of comparison).

Re claim 2, Okumura et al. further disclose in Figures 1-9 the means for comparing, the means for storing and the means for concatenating are adapted to execute sequentially within one processor cycle (e.g. col. 4 lines 45-50 and col. 5 lines 65-68).

Re claim 3, Okumura et al. further disclose in Figures 1-9 the first source register and the destination register comprise a same register (e.g. specific register 11 in Figure 1).

Re claim 4, Okumura et al. further disclose in Figures 1-9 the second source register and the destination register comprise a same register (e.g. reversed the register 11 in Figure 1).

Re claim 5, Okumura et al. further disclose in Figures 1-9 the first value is stored in N low-order bits of the first source register and the second value is stored in N low-order bits of the second register, N being an integer value (e.g. wherein N is the size of registers 5-6 and 11 for storing the data values in Figure 1).

Re claim 6, Okumura et al. further disclose in Figures 1-9 the first source register and the second source register each include an active status bit to indicate a status of the respective register, and wherein a value of a register having an active status is less than a value of a register having an inactive status (e.g. Figure 1 with the index field wherein the index field is either exist or non-exist with the data value to indicate the minimum value within values).



11. Claims 16-19 and 35-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okumura et al. (U.S. 5,726,923) in view of the admitted prior art.

Re claim 16, Okumura et al. fail to disclose in Figures 1-9 each of the plurality of values represents a due timestamp of a corresponding input queue for implementing Weighted Fair Queuing. However, the admitted prior art discloses each of the plurality of values represents a due timestamp of a corresponding input queue for implementing Weighted Fair Queuing (e.g. page 2 lines 1-26).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention is made to add each of the plurality of values represents a due timestamp of a corresponding input queue for implementing Weighted Fair Queuing as seen in the admitted prior art into the Okumura et al.'s invention because it would enable to process the data in prioritization for used in network processor (e.g. page 2 lines 1-5 and lines 14-18).

Re claim 17, Okumura et al. disclose in Figures 1-9 a customer premise equipment (e.g. Figure 1 as general architecture) comprising: and a processor operably connected to the interfaces and being adapted to (e.g. for getting data into memory 1 in Figure 1); compare (e.g. by arithmetic logic unit 4 in Figure 1) a first value stored in a first source register of the processor (e.g. specific register 11 in Figure 1) with a second value stored in a second source register of the processor (e.g. registers 5-6 in Figure 1); store the first value in a first destination register of the processor when the first value is less than or equal to the second value (e.g. path when the specific register 11 is less than register 5 in Figure 3); and store the second value in the first destination register of the

processor (e.g. value in register 6 in Figure 1) and an index value in a second destination register of the processor (e.g. corresponding index value of register 6 in Figure 1) when the second value is less than the first value (e.g. step S9 in Figure 3), the index value representing the second source register (e.g. Figure 2).

Okumura et al. fail to disclose a network interface operably connected to a first network segment and a network interface operably connected to a second network segment and the condition of equal to for the first test in combine with less than to form less than or equal to. However, the admitted prior art disclose the general architecture of processor operation in network (e.g. pages 1-2) in which a network interface operably connected to a first network segment a network interface operably connected to a second network segment are standard and well-known and the condition less than or equal is very well-known in the art and widely used in many practical applications.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention is made to add the additional condition as less than or equal to and the a network interface operably connected to a first network segment and a network interface operably connected to a second network segment as seen logically in the admitted prior art into Okumura et al.'s invention because it would enable to process data over the network with all conditional events (e.g. page 2 lines 1-26).

Re claim 18, it has similar limitations cited in claim 2. Thus, claim 18 is also rejected under the same rationale as cited in the rejection of rejected claim 2.

Re claim 19, it has similar limitations cited in claim 16. Thus, claim 19 is also rejected under the same rationale as cited in the rejection of rejected claim 16.

Re claim 35, it has similar limitations cited in claim 16. Thus, claim 35 is also rejected under the same rationale as cited in the rejection of rejected claim 16.

Re claim 36, it has similar limitations cited in claim 17 and further Okumura et al. disclose in Figures 1-9 the same architecture can be used/implemented to perform maximum detection in same manner as minimum detection (e.g. col. 5 lines 38-51). Thus, claim 36 is also rejected under the same rationale as cited in the rejection of rejected claim 17.

Re claim 37, it has similar limitations cited in claim 18. Thus, claim 37 is also rejected under the same rationale as cited in the rejection of rejected claim 18.

Re claim 38, it has similar limitations cited in claim 19. Thus, claim 38 is also rejected under the same rationale as cited in the rejection of rejected claim 19.

### ***Response to Arguments***

12. Applicant's arguments filed 10/22/2008 have been fully considered but they are not persuasive.

a. The applicant argues in page 13 first paragraph for claims rejected under 35 U.S.C. 101 that these claims are directed to more than just a series of mental steps wherein these processor claims are considered as "articles of manufacture" or "machines". Thus, they should be statutory.

The examiner respectfully submits that the processor claims fail to disclose a practical application or physical transformation rather than determining whether the claims are machine and automatically become statutory subject matter/claims.

In order to be statutory, the claims must be within four statutory categories and further be useful, concrete and tangible as such the practical/physical transformation existing.

- b. The applicant argues in pages 14-16 for independent claims 13 and 32 that the cited reference by Okumura et al. does not disclose the amended limitation “assigning a destination register with an index value and a value of a first source register from among the plurality of source registers” as cited in the claims.

The examiner respectfully submits that the specific limitations in view of the above 112<sup>th</sup> 2nd rejection is clearly seen in Figures 1 and 3 of the cited reference by Okumura et al. wherein the specific register 11 as the destination register originally stores/holds the minimum value with index from the sources registers 5/6 as disclosed by the abstract.

- c. The applicant argues in pages 19-24 for independent claims 1, 17 and 36 that the cited reference by Okumura, particularly Figure 1 and 3, fails to disclose the claimed invention, particularly the both conditions required within the claims.

The examiner respectfully submits that the applicant has misunderstood the invention by Okumura and further has made several fault assumption while analyzing the Figure 3. First of all, the Examiner respectfully points to the abstract and ANY description portions relate to the Figures 1, 3 and 9 for disclosing the claimed invention. Again, the Examiner equates the specific

register 11 as the source and destination register; the registers 5-6 might load the same values from the memory (e.g. see the abstract). Let equate specific register 11 as the first source register and also the destination register; register 5 and register 6 are same value as second source register. Upon comparison, the first condition can occur as if the specific register 11 larger or equal to register 5, then activate S9 which value of register 5/6 links with the index and stored in register 11; otherwise the second condition can occur as if the specific register 11 smaller than register 5, then the register 11 would store/hold the same value since it is the minimum from the two comparison numbers.

### ***Conclusion***

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHAT C. DO whose telephone number is (571)272-3721. The examiner can normally be reached on Tue-Fri 9:00AM to 7:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lewis Bullock can be reached on (571) 272-3759. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Chat C. Do/  
Primary Examiner, Art Unit 2193

February 1, 2009

**Application Number****Application/Control No.**

10/757,587

**Applicant(s)/Patent under  
Reexamination**

ZABARSKI ET AL.

**Examiner**

Chat C. Do

**Art Unit**

2193